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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/669,877	09/27/2000	Randell L. Mills	62-231-1EL	4531

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MANELLI DENISON & SELTER
2000 M STREET NW SUITE 700
WASHINGTON, DC 20036-3307

EXAMINER	
TSANG FOSTER, SUSY N	
ART UNIT	**PAPER NUMBER**
1745	

DATE MAILED: 04/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/669,877	MILLS, RANDELL L.	
	Examiner	Art Unit	
	Susy N Tsang-Foster	1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 March 2003 and 10 October 2003*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-28* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-28* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *20031010, 20030310*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☒ Other: *See Continuation Sheet*.

Continuation of Attachment(s) 6). Other: IDS filed 20020716 and Appendix by Dr. Bernard Souw.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submissions filed on 3/10/2003 and on 10/10/2003 have been entered.

Response to Applicant's Submissions

2. This Office Action is responsive to the response filed on 3/10/2003, the appendix filed on 3/10/2003, and the supplemental response filed on 10/10/2003. It is noted that in the response filed on 3/10/2003, the first page of the response contains the serial number 09/669,877 and the rest of the pages of the response contains serial number 08/467,051 which is one of applicant's copending cases. It appears that the same response filed for 08/467,051 was filed on 3/10/2003 for the present case. Claims 1-28 are pending. No amendments have been made to the claims since the last office action. Claims 1-28 are finally rejected for the reasons of record.

Information Disclosure Statement

3. The information disclosure statements filed on 7/16/2002, 3/10/2003, and 10/10/2003 have been considered by the Examiner. It is noted that citations that are listed as being submitted, in preparation or in press and without a publication date have been considered but they have been crossed out since these are not yet publications.

Claim Rejections - 35 USC § 101

4. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5. Claims 1-28 are rejected under 35 U.S.C. 101 because the disclosed invention is inoperative and therefore lacks utility.

See the reasons given under this heading in the previous Office Action mailed on 9/9/2002.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claims 1-28 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to

which it pertains, or with which it is most nearly connected, to make and/or use the invention.

See the reasons given under this heading in the previous Office Action mailed on 9/9/2002.

Response to Arguments

8. Applicant's arguments filed 3/10/2003 and 10/10/2003 have been fully considered but they are not persuasive.

The invention of the present application is drawn to catalytic reactions of one electron atoms each having an atomic mass of at least four to form compositions of matter comprising new forms of one electron atoms having an atomic mass of at least four and having an increased binding energy greater than the binding energy of the corresponding ordinary atomic ion. Specifically, new forms of one electron atoms such as He^{+}, Li^{2+} and Be^{+3} are each disclosed and claimed to have a binding energy greater than the binding energy of ordinary He^{+}, ordinary Li^{+2} and ordinary Be^{+3}, respectively.

The only theoretical support for applicant's present invention appears to be related to applicant's theory of the hydrino atom having a binding energy given by $13.6eV/(1/p)^2$ where p is an integer value greater than 1 (see equation on page 1 of applicant's specification). Applicant postulates that the catalytic reaction of either the conventional ground state hydrogen atom to unconventional lower energy states or the hydrino atom to unconventional lower energy states by reacting an ordinary ground state

hydrogen atom or a hydrino atom with a catalyst having a net enthalpy of reaction of about m x 27.2 eV where m is an integer may be generalized to all one electron atoms (see page 4 of applicant's specification).

Applicant defines a one electron atom to be an atom comprising a nucleus and one electron (see page 4 of the specification). Applicant extends his theoretical postulates of the hydrino atom which contains one electron and a nucleus having one proton to all one electron atoms (see pages 4 and 6 of applicant's specification). Applicant merely states in the present specification but does not prove the applicability of theory of the hydrino atom to all one electron atoms. Applicant appears to assume that his theory of the hydrino atom which is postulated and not derived (see reasons below), applies to all one electron atoms by modifying the postulated equation of the energy levels of a hydrino atom which is 13.6 eV/ $(1p)^2$ (see page 1 of the specification) by simply multiplying it with a factor of q^2 where q is the nuclear charge of one electron atom to give the equation $q^2 13.6$ eV/$(1/p)^2$ where p is an integer greater than 1 to represent the energy levels of a one electron atom having increased binding energy as compared to the corresponding ordinary one electron atom (see page 10 of applicant's specification).

It does not appear that any of the equations of applicant's theory as shown in applicant's book, the Grand Unified Theory of Classical Quantum Mechanics, either the 1999 edition or the 2000 edition, take into account the nuclear charge q so it is therefore unclear how a solution of the energy levels of a one electron atom involving nuclear charge q would come about from applicant's theory if the nuclear charge q of the atom

does not appear in any of the equations. In addition to the increased binding energy of the one electron atom, applicant asserts that energy is a further product of the catalysis reaction as a result of the lower energy state transitions of the one electron atoms (see page 12 of the specification).

According to applicant's theory of the hydrino atom, a hydrino atom is formed by reacting an ordinary ground state hydrogen atom with a catalyst having a net enthalpy of reaction of about m x 27.2 eV where m is an integer (see page 2 of applicant's specification). Applicant states that an ordinary hydrogen atom (n=1) releases a net enthalpy of 40.8 eV when it is catalyzed to the n=1/2 state (see page 4 of applicant's specification) and that the energy given off during catalysis is much greater than the energy lost to the catalyst and that the energy released is large as compared to conventional chemical reactions (see page 3 of applicant's specification).

The catalyst according to applicant's postulate is an energy hole or source of energy hole that releases energy from the hydrogen atom with a commensurate decrease in size of the hydrogen atom to form a novel state of the hydrogen atom having a fractional quantum energy level such that ordinary hydrogen having quantum number n=1 undergoes catalytic transitions to n =1/2 (see page 3 of applicant's specification). Applicant also states that further catalytic transitions may occur from n=1/2 → 1/3, 1/3 →1/4, 1/4→1/5 and so on and that once catalysis begins, hydrinos autocatalyze further in a process called disproportionation (See page 4 of applicant's specification).

It appears that applicant extends his model of the hydrino atom by assuming without an explanation that all one electron atoms will undergo lower energy state transitions in the presence of a catalyst that provides a net enthalpy of reaction of about m x 27.2 eV where m is an integer. Applicant asserts on page 5 of the specification that a hydrino atom may provide a net enthalpy of reaction of about m x 27.2 eV where m is an integer in an ionization reaction to served as a catalyst for He^+ (which is a one electron atom) or lower-energy He^+ to undergo a transition to a lower energy state (see page 5 of applicant's specification).

There is no plausible physical mechanism of energy transfer to explain why a catalyst having an net enthalpy of reaction of m x 27.2 eV would cause a lower energy state transition of a one electron atom such as hydrogen from the ordinary ground state n =1 to a lower nonexistent energy state n = ½ . Moreover, the net enthalpy of reaction of m x 27.2 eV does not match the energy given off by the first lower energy state transition of n = 1 to n =1/2 which is 40.8 eV as admitted by applicant on page 4 of applicant's specification.

Applicant also appears to contradict himself regarding the net enthalpy of reaction of the catalyst on page 11 of the specification. Applicant states on page 11 of the specification that the method comprises reacting one electron atoms with catalyst having a net enthalpy of reaction of about m/2 x 27 eV where m is an integer greater than 1 in contrast to page 4 of the specification which states that a one electron atom is catalyzed to a lower energy state when it is reacted with a catalyst having a net enthalpy of reaction of

about m x 27.2 eV where m is an integer. Applicant also states on pages 13 and 18 of the specification that the catalytic reaction for producing the hydrino atom provides a net enthalpy of reaction of about m/2 x 27 eV in direct contrast to page 2 of the specification which states that hydrino atoms are formed by reacting an ordinary hydrogen atom with a catalyst having a net enthalpy of reaction of about m x 27.2 eV.

On page 13 of the specification, applicant proposes a mechanism of catalyzing ordinary He^+ atom with Fe to give an overall reaction of

$$He^+[a_H/2] \rightarrow He^+ [a_H/3] + [3^2-2^2] \times 13.6 \text{ eV}$$

This mechanism does not appear to make any sense since it does not show how $He^+ [a_H/2]$ corresponding to p=2 state for He^+ is initially obtained since the reaction starts out with ordinary He^+ (p=1) and Fe. It would appear from the analogous reaction equation for the hydrino atom on page 3 of applicant's specification that the equation on page 13 of the specification corresponds to a transition of p =2 of He^+ to p =3 of He^+. In addition, the enthalpy part of the equation on page 13 is off by a factor of 4 since the nuclear charge for helium is q=2 and must be accounted for in the binding energy of a one electron helium ion according to applicant's theory as seen in equation 11 on page 10 of applicant's specification. The energy difference between the $He^+ [a_H/3]$ state and the $He^+[a_H/2]$ state is 272 eV according to equation 11 on page 10 of applicant's specification and the triple ionization reaction of Fe to Fe^{3+} having a net enthalpy of reaction of 54.7 eV would not be able to catalyze the reaction as asserted by applicant on page 13of the

specification. Therefore, applicant's mechanism on page 13 for catalyzing He^+ using Fe to a lower energy state is not plausible and does not make any physical or mathematical sense. Moreover, applicant has not shown how this incorrect mechanism would even be applicable to all one-electron atoms since the nuclear charge q would be different for different atoms and would affect applicant's proposed catalytic net enthalpy requirements of reaction according to equation 11 on page 10 of applicant's specification.

Notwithstanding the implausibility of the mechanism of catalysis proposed by applicant as discussed above and the inconsistencies in the present specification of the net enthalpy requirements of the catalytic reaction of a one electron atom to form an increased binding energy one electron atom as compared to the binding energy of a corresponding ordinary one electron atom (m/2 x 27.2 eV vs. m x 27 eV), energy states lower than n =1 for a one electron atom, whether they are those of a hydrino atom, or those of a one electron atom having an atomic mass of at least four, are not conventionally known or accepted by one of ordinary skill in the art.

Since applicant's present invention for one electron atoms having increased binding energy is based on an unexplained extension of applicant's erroneous theory of the hydrino atom by simply multiplying the energy levels of a hydrino atom by q^2 where q is the nuclear charge of the one electron atom, applicant's presently claimed invention of compounds and method of making these compounds comprising one electron atoms having an increased binding energy greater than the binding energy of the corresponding

ordinary atomic ion are not theoretically supported since the theory of the hydrino atom is mathematically and scientifically flawed for reasons given below.

Furthermore, applicant has not provided independent experimental evidence for these new forms of one electron atoms having an atomic mass of at least four and having an increased binding energy greater than the binding energy of the corresponding ordinary one electron atomic ion. All experimental submissions to date are drawn to applicant's attempt to prove the existence of the hydrino atom based on experiments containing a hydrogen atom and therefore do not provide experimental evidence for new forms of one electron atoms having an atomic mass of at least four and having an increased binding energy greater than the binding energy of the corresponding ordinary one electron atomic ion. Nevertheless, applicant's experimental submissions to prove the existence of the hydrino atom are not persuasive for reasons given below.

From applicant's arguments of record it is evident that he rejects a century of work in quantum mechanics by those of skill in the art such as Nobel Laureates Schrodinger, Dirac, and Feynman as discussed in the ATTACHMENT TO RESPONSE TO APPLICANT'S ARGUMENTS attached to paper #12 mailed on 3/25/2003 (hereinafter referred to as "ATTACHMENT in paper #12") in favor of his own theory of the hydrogen atom that allegedly predicts a new form of the hydrogen atom known as the hydrino atom. However, applicant's theory of the hydrino atom fails to be a scientifically credible alternative in place of the conventionally established theory of quantum mechanics for the hydrogen atom for reasons given in the ATTACHMENT in paper #12 .

The existence of the hydrino atom is contrary to the known laws and theories of chemistry and physics. Applicant's theory of the hydrino atom predicts a new form of the hydrogen atom having energy states represented by fractional quantum numbers that are below the conventional ground state of the hydrogen atom. These energy states having fractional quantum numbers are contrary to the conventionally accepted energy states of the hydrogen atom having positive integer quantum numbers predicted by quantum mechanics that have been successfully verified by decades of independent, reproducible experimental results as stated in ATTACHMENT in paper #12.

As deduced from the experimentally observed spectrum of the H atom, it is well-established that it has a ground state energy level ($n = 1$) as well as excited energy states corresponding to integer values of $n > 1$. There is no experimental evidence besides applicant's own interpretation of his data, that there are allegedly novel energy states corresponding to non-integer or fractional values of n for the hydrogen atom. Moreover, the spectrum of the H atom is accurately predicted by the well-known modern theory of quantum mechanics based on Schrodinger's equation and refinements thereof such as Dirac's equation as discussed in the ATTACHMENT in paper #12.

There is no established modern theory of science that predicts energy levels of the hydrogen atom that would fall below the ground state energy of the hydrogen atom having fractional quantum numbers as postulated by applicant's theory. Indeed, scientists have continued to refine quantum mechanics to apply it to vastly more complex entities

than the H atom and it is agreed amongst those of skill in the art that the properties of the hydrogen atom to date have been fully characterized to an extraordinarily high degree of accuracy as discussed in the ATTACHMENT in paper #12.

Applicant's arguments for the existence of the hydrino atom in the responses filed on 3/10/2003 and on 10/10/2003 were previously made of record and were shown to be unpersuasive for reasons given in the ATTACHMENT in paper #12. It appears that applicant repeats his arguments which have already been fully addressed in the ATTACHMENT in paper #12.

Applicant also states that documents submitted of record show experimental support for applicant's fractional quantum number states of the hydrogen atom (a hydrogen atom existing in one of these fractional quantum number states is called a hydrino) that are hitherto unknown to one of ordinary skill in the art. It is noted that the experimental data submitted are largely applicant's own work which have not been conventionally accepted by those of ordinary skill in the art. In response, the ATTACHMENT in paper #12 has already provided substantial evidence that the hydrino atom does not theoretically or physically exist as presently claimed and thus those skilled in the art would "reasonably doubt" the asserted utility and operability of applicant's invention (see ATTACHMENT in paper #12).

With respect to applicant's theory, sections 4 through 10 of the ATTACHMENT in paper #12 provide substantial evidence that applicant's theory is contradictory,

physically unsound, and mathematically incorrect. Complementary scientific arguments demonstrating the incorrectness of applicant's theory can be found in the attached appendix by Dr. Bernard Souw, a patent examiner in art unit 2881, that was cited in copending case 09/513,768 which also claims the hydrino atom as the basis of the invention therein.

In response to applicant's repeated demands that the Examiner focus on his experimental results rather than his theory, it is noted that applicant's experimental results involve entities such as the hydrino atom which can only be understood from applicant's theory. Thus, it is critical to evaluate applicant's theory because he has introduced this theory into his claims as stated on page 5 of the ATTACHMENT in paper #12 where the relevant portion of which is reproduced below:

> "While it is agreed that an inventor need not necessarily understand the theory behind his invention, attention is drawn to the fact that by reciting the phrases that include "hydrino atom" or equivalent terminology, such as, "hydrino hydride," "increased binding energy hydrogen species," etc. referring to something other than a "normal" hydrogen atom, in his claims, the applicant has ipso facto introduced his theory of the "hydrino atom" into the claims.
>
> Moreover, a similar interpretation of an invention occurred in Newman v. Quigg, op. cit., where an applicant's claims to a machine which operated according to a theory which violated the second law of thermodynamics were held to be unpatentable. Hence it is clear why the examiner is obliged to review applicant's theory in addition to evaluating the experimental evidence alleged to support patentability of the present claims.
>
> The applicant's theory is the unique source from which the existence of the "hydrino atom" is demonstrated. It is, therefore, natural and logical to interpret applicant's invention in terms of the basic underlying premise offered by applicant's theory."

Thus, in view of the above arguments, it is necessary to evaluate applicant's theory to determine patentability of his claims. As stated above, applicant's theory lacks

credibility for reasons given in the ATTACHMENT in paper #12 and in the attached appendix by Dr. Bernard Souw.

In the amendments filed 3/10/2003 and 10/10/2003, applicant asserts that he has submitted a multitude of analytical studies experimentally confirming the disclosed novel reaction of atomic hydrogen, which produces hydrogen in fractional quantum states that are at lower energies than the traditional "ground" (n=1) state. In response, applicant's experimental results have already been addressed in the ATTACHMENT to paper #12 and can be explained by conventional science which does not involve the existence of the hydrino atom.

As a case in point of scientific data that can be explained by conventional science without the need to use applicant's scientifically implausible theory of the hydrino atom, applicant's attention is directed to the document titled "Hydrocatalysis Technical Assessment, Prepared for Pacificorp, prepared by Technology Insights, dated August 2, 1996", submitted by applicant on 7/17/2002. According to the document on page 5, the applicant of the present application is the founder of Hydrocatalysis Power Corporation (HPC) now known as Blacklight Power, Inc. Pages 20-21 of the document states that spectral data taken from the reference S. Labov and S. Bowyer, "Spectral Observations of the Extreme Ultraviolet Background", The Astrophysics Journal, 371, 810 (1991), were evaluated by HPC for indications of hydrino. HPC assigned peaks in the wavelength region of 80 to 650 Å to hydrino transitions. As shown in Table 4-1 on page 21 of the

document, the HPC assignments contradict the alternative assignments made by the authors of the paper.

Page 21 of the document also states that Bowyer (an astrophysicist and author of the astrophysics journal paper cited above) disputed the HPC interpretation of the data and that the paper on the HPC interpretation submitted to the Astrophysical Letters and Communications was not accepted for publication. The document also states on page 21 that the low energy hydrogen concept and its implications regarding data interpretation has not received general review or acceptance by the astrophysics community. Thus, applicant's assertions regarding the existence of hydrino based on observations of radiation spectra from space, i.e., astrophysical data, have not been accepted by the astrophysics community as evidenced by the document submitted by applicant on 7/17/2002 since a more credible scientific alternative exists to explain the spectral data.

Applicant has submitted plasma data that allegedly prove the existence of the hydrino atom in the information disclosure statements filed above. It is noted that these references submitted are applicant's own work which have not been reproduced and verified by independent laboratories. Nevertheless, the Examiner is unpersuaded by applicant's plasma data. For example, applicant's interpretation of the observation of line broadening in the plasma data due to a resonance transfer mechanism (r-t mechanism) is unconvincing because alternative conventional explanations are equally plausible to explain the line broadening observed in the plasma data. It is well known that hydrogen transitions are easily perturbed by the plasma and microwave fields, since the atomic

hydrogen has only one electron that is not protected by screening effects, especially those having large ℓ quantum numbers. Anomalous broadening of hydrogen lines in microwave plasma has been subjected to experimental and theoretical studies for decades (see Luggennhölscher et al. "Investigations on Electric Field Distributions in a Microwave Discharge in Hydrogen", obtained from <URL: http://www.phys.tue.nl/FLTPD/Luggenhoelscher.pdf>).

In the reference by Mills et al. titled "Comparison of Excessive Balmer α Line Broadening of Glow Discharge and Microwave Hydrogen Plasmas with Certain Catalysts" that was cited in the information disclosure statement filed on 7/1/7/2002 (hereinafter referred to as 'Mills et al. "Comparison of Excessive Balmer α Line Broadening" document'), applicant asserts that the broadening of the hydrogen Balmer α line in microwave discharge plasma of a mixture containing predominantly argon and small amounts of hydrogen can be explained by a radiative transfer mechanism involving the species providing a net enthalpy of a multiple of 27.2 eV and atomic hydrogen (see p. 3 and 5 of Mills et al. "Comparison of Excessive Balmer α Line Broadening" document). However, conventional alternative theories can explain the broadening of the Hα lines in the microwave discharge plasma of the Ar/H mixture as evidenced by Luque et al. "Experimental research into the influence of ion dynamics when measuring the electron density from the Stark broadening of the H_α and H_β lines", J. Phys. B: At. Mol. Opt. Phys. 36 (2003) pp. 1573-1584 and Luggennhölscher et al. "Investigations on Electric Field Distributions in a Microwave Discharge in Hydrogen", obtained from <URL: http://www.phys.tue.nl/FLTPD/Luggenhoelscher.pdf>.

Luque et al. carried out an analogous microwave discharge plasma experimental setup (see Figure 1 of Luque et al.) involving Ar gas where H was present in a trace amount. Luque et al. explained that under their operating conditions, the whole broadening attained by the profiles of the Balmer Hα line is the result of two Lorentzian broadenings, the Stark (ω_S) and van der Waals (ω_W) ones and two Gaussian broadenings, the Doppler (ω_D) and the instrumental (ω_I) ones (see p. 1580 of Luque et al.). It appears in the Mills et al. "Comparison of Excessive Balmer α Line Broadening" document, applicant has not taken into account broadening of the line profile by the two Lorentzian broadenings in their microwave discharge plasma experiment involving the Ar/H mixture. Applicant state on pages 7 and 8 of the Mills et al. "Comparison of Excessive Balmer a Line Broadening" document that only a Gaussian profile was used to fit the line profile of the Balmer α line. It appears that applicant ignored significant contributions to the line broadening due to dynamic Stark broadening (one of the components of Lorentzian broadening) in interpreting his data.

Luque et al. was able to fully account for the line broadening of the Balmer Hα line in a gas mixture comprising Ar and H only with two Lorentzian components and two Gaussian components as stated above. These components fully account for the broadening of the Balmer Hα line due to proper analysis of the electron density and ion dynamics in the system by Luque et al. There is no need to use a resonant energy transfer mechanism to explain the broadening of the Balmer Hα line when an alternative

conventional explanation offered by Luque fully accounts for the broadening of the Hα line in a mixture of H_2/Ar in a microwave discharge experiment.

Furthermore, another microwave discharge experiment by Luggennhölscher et al. ("Investigations on Electric Field Distributions in a Microwave Discharge in Hydrogen", obtained from <URL: http://www.phys.tue.nl/FLTPD/Luggenhoelscher.pdf>) that is similar to that disclosed in the Mills et al. "Comparison of Excessive Balmer α Line Broadening" document involving a hydrogen and an argon mixture shows anomalous line broadening of the Balmer Hα line that can be attributed to microwave plasma effects. Applicant's assertion that the extraordinary line broadening is due to a radiative transfer mechanism is not convincing because the line broadening can be due to conventional effects as explained above.

Applicant has incorrectly assumed that the Doppler effect (the Gaussian component) is the main cause of the line broadening in microwave discharge plasmas as stated in Mills et al. "Comparison of Excessive Balmer α Line Broadening" document. Furthermore, applicant incorrectly states that there was no electric field present in the microwaves plasma and therefore the results of the Balmer α line broadening cannot explained by Stark broadening (see page 12 of Mills et al. "Comparison of Excessive Balmer α Line Broadening" document). The microwave plasma contains an internal electric field due to the ions and electrons present in the plasma and this internal electric field causes dynamic Stark broadening of the Balmer H α line. Applicant's incorrect assertion regarding the mechanism of this line broadening in the Balmer H α line is

enough to disqualify all of applicant's arguments based on anomalous or excessive line broadening in microwave plasmas due to a resonance transfer (r-t) mechanism.

Thus, in view of the serious mathematical and scientific flaws in applicant's theoretical foundation for his invention that is contrary to known science, the lack of independent, reproducible experiments that verify the existence of the hydrino atom, and the lack of experimental evidence for one electron atoms having an atomic mass of at least four characterized by an increased binding energy greater than the binding energy of the corresponding ordinary atomic ion as presently claimed, applicant has failed to provide preponderance of evidence to support his claims.

Conclusion

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

10. Any inquiry concerning this communication or earlier communications should be directed to examiner Susy Tsang-Foster, Ph.D. whose telephone number is (571) 272-1293. The examiner can normally be reached on Monday through Friday from 9:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached at (571) 272-1292.

The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

st/ Susy Tsang Foster

Susy Tsang-Foster
Primary Examiner
Art Unit 1745